

Notice of Allowability

Application No.

10/667,724

Examiner

Stanley J. Pruchnic, Jr.

Applicant(s)

MENDE ET AL.

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 1-6.
3. ☒ The drawings filed on 22 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Reasons for Allowance

1. The following is an examiner's statement of reasons for allowance:

US 6204657 B1 (Stanley, Gerald R.), considered the closest prior art of record, discloses a method of monitoring the temperature of a transformer winding in a current probe wherein the current probe includes a magnetic core 12 having a multi-turn winding disposed there-around (Col. 2, Line 16) forming a probe transformer and a Hall Effect device 10 disposed within the magnetic core (Col. 2, Lines 6-13) for generating a differential output signal for producing a current signal through the multi-turn winding (Col. 2, Lines 13-16), the method comprising:

determining a relative temperature of the Hall Effect device as a function of resistance change of the Hall Effect device (Col. 2, Lines 30-33); and

combining (Col. 2, Lines 49-52) a [corrected] signal and the relative Hall Effect device temperature-dependent voltage to produce a continuous transformer temperature (at output of amplifier 14) indicative of the temperature of the transformer.

Stanley discloses a temperature-dependent voltage taken across resistor 18 is adjusted by a panning potentiometer 26 forming a corrected signal.

US 4,623,265 A (POYSER) discloses a related method of monitoring temperature of a transformer winding (although not in a current probe as claimed by Applicant), including alarms and visual indicators, and teaching combining an initial temperature (the "top-oil temperature) and a determined temperature gradient to produce a continuous transformer temperature indicative of the temperature of the transformer. POYSER does not disclose or suggest determining a relative temperature of a Hall effect device as claimed by Applicant.

None of the prior art of record disclose or fairly suggest the steps of determining an initial transformer temperature of the current probe as a function of the winding resistance of the transformer and combining the initial transformer temperature and the relative Hall effect device temperature to produce a continuous transformer temperature

indicative of the temperature of the transformer as recited in claim 1 in combination with the other limitations of the claim.

Claims 2-6 are allowable by virtue of their dependency upon claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in a form PTO-892 and not mentioned above disclose related devices and methods.

- US 2,464,807 A (HANSEN, JR.) discloses a magnetic core having a multi-turn winding disposed there-around forming a transformer and a Hall Effect device disposed within the magnetic core, but there is no disclosure or suggestion of any determining of a relative temperature of the Hall Effect device.
- US 4,897,584 A (Grutzmacher et al.) discloses a method of monitoring the temperature of a motor coil winding by determining the temperature-dependent resistance of the coil, but has no teaching or suggestion of combining two different types of temperature measurement to produce a continuous transformer temperature as claimed by Applicant.
- US 6,042,265 A (Kliman et al.) discloses a method of monitoring the temperature of coils using determined resistance in combination with other measurements.
- US 6,139,181 A (Olszowka) discloses a method for determining temperature of coil by establishing a relationship between current and voltage in windings.
- US 1,565,504 A (RUDD et al.) discloses a method of monitoring the temperature of a transformer by using two windings having different temperature coefficients of resistance.
- US 6400131 B1 (Turner, Michael James) discloses a method of compensating for offset in the output of a Hall effect element used as a Current transformer, but has no teachings regarding temperature monitoring.

- US 5493211 A (Baker, Clifford E.) discloses current probe circuitry including self-calibration, but lacks any teaching regarding temperature monitoring.
- US 4327416 A (Jerrim, John W.) discloses a current probe including a temperature compensated Hall effect element.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanley J. Pruchnic, Jr., whose telephone number is **(571) 272-2248**. The examiner can normally be reached on weekdays (Monday through Friday) from 7:30 AM to 4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached at **(571) 272-2245**.

The **Official FAX** number for Technology Center 2800 is **(703) 872-9306** for **all official communications**.

Any inquiry of a general nature or relating to the status of this application or proceeding may be directed to the official USPTO website at **<http://www.uspto.gov/>** or you may call the **USPTO Call Center** at **800-786-9199** or 703-308-4357. The Technology Center 2800 Customer Service FAX phone number is (703) 872-9317.

The cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov/), from the Office of Public Records and from commercial sources.

Private PAIR provides external customers Internet-based access to patent application status and history information as well as the ability to view the scanned images of each customer's own application file folder(s).

For inquiries relating to Patent e-business products and service applications, you may call the **Patent Electronic Business Center (EBC)** at **703-305-3028** or toll free at **866-217-9197** between the hours of **6 a.m. and midnight Monday through Friday EST**, or by e-mail at: **ebc@uspto.gov**. Additional information is available on the Patent EBC Web site at: **<http://www.uspto.gov/ebc/index.html>**.

SSP

Stanley J. Pruchnic, Jr.
7/6/04


EDWARD LEIKOWITZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800